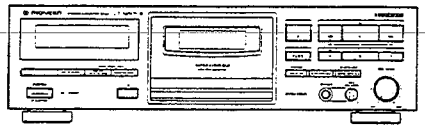
Service Manual

PIONEER®
The Art of Entertainment

PION-04970



ORDER NO.
RRV1497

STEREO CASSETTE DECK

CT-S450S

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	Remarks
	CT-S450S		
HYXJ	○	AC220–230V	
HYXJ/GR	○	AC220–230V	

CONTENTS

1. EXPLODED VIEWS, PACKING AND PARTS LIST 2
2. BLOCK DIAGRAM 7
3. ADJUSTMENTS 8
4. SCHEMATIC AND PCB CONNECTION DIAGRAMS 12
5. PCB PARTS LIST 21
6. FL INFORMATION 24
7. PANEL FACILITIES 25
8. SPECIFICATIONS 26

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE, INC. P.O. Box 1760, Long Beach, CA 90801-1760, U. S. A.
PIONEER ELECTRONIC (EUROPE) N.V. Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 501 Orchard Road, #10-00 Lane Crawford Place, Singapore 0923

© PIONEER ELECTRONIC CORPORATION 1996

T-SSR FEB. 1996 Printed in Japan

CT-S450S

1. EXPLODED VIEWS, PACKING AND PARTS LIST

NOTES:

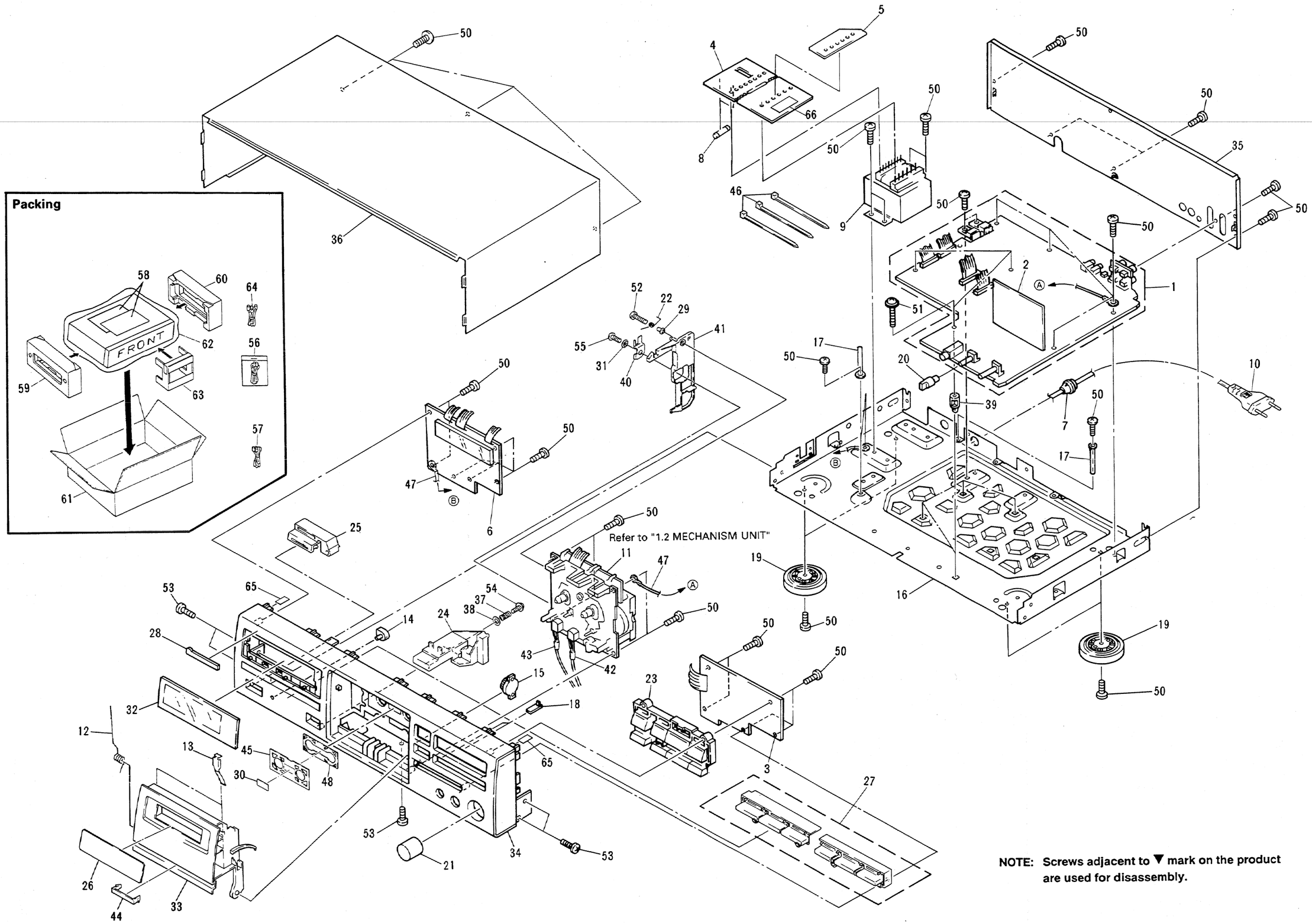
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by " ⊙ " are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

1.1 EXTERIOR AND PACKING

Parts List

Mark	No.	Description	Parts No.
	1	Main unit	RWZ3845
	2	Dolby S unit	RWX1109
	3	OPSW unit	RWZ3846
	4	TR 1 unit	RWZ3848
NSP	5	TR 2 unit	RNZ3037
	6	FL unit	RWZ3847
⚠	7	Strain relief	CM-22B
⚠	8	Fuse FU1001, FU1002 (T1.0A/L250V)	REK1022
⚠	9	Power transformer	RTT1254
⚠	10	Power cord with HE plug	PDG1043
	11	Mechanism unit	RYM1240
	12	Door spring L	RBH1384
	13	Half pressure spring	RBK1004
	14	LED lens	PNW2019
	15	Damper assy	REC1267
NSP	16	Main chassis	RNB1100
	17	Cord clamper	RNH-184
	18	Indicator lens	RNK1911
	19	Insulator	PNW1912
	20	Balance knob	RAC1705
	21	VR knob	RAC1707
	22	Eject spring L	RBH1379
	23	Operation knob	RAC1795
	24	Eject knob	RAC1906
	25	Power knob	RAC1809
	26	Door lens	RAH2687
	27	Mode knob A	RAC1907
	28	Name plate	RAM1007
	29	Eject collar	RLA1283
	30	Indication panel	REE-113
	31	Arm collar	RLA1290
	32	FL lens	RAH2413
	33	Door pocket	RAH2715
	34	Front panel	RAH2717
	35	Rear panel	RNA2035
	36	Bonnet	REA1077
	37	Eject spring	RBH1340
	38	Washer	WA52D120D025
NSP	39	PCB spacer	PNY-404
	40	Eject arm L	RNE1763
	41	Eject lever L	RNK2045
	42	Connector assy 3P	RKP1672
	43	Connector assy 2P	RKP1681
	44	Azimuth cover	REA1238
	45	Stabilizer panel	RAH1483

Mark	No.	Description	Parts No.
	46	Binder	ZCA-T18S
NSP	47	Earth lead assy	RDF1089
	48	Stabilizer	REB1085
	49	.....	
	50	Screw	BBZ30P080FMC
	51	Screw	IBZ30P150FCU
	52	Screw	BSZ26P120FMC
	53	Screw	ABZ30P080FMC
	54	Screw	IPZ26P080FMC
	55	Screw	BCZ26P050FMC
	56	Connection cord assy	RDE1036
	57	Control cord	RDE1044
	58	Operating instructions (English/German)	RRB1135
	58	Operating instructions (French/Italian/Dutch/ Swedish/Spanish/Portuguese)	RRD1183 (HYXJ type)
	59	Pad (L)	RHA1213
	60	Pad (R)	RHA1212
	61	Packing case	RHG1734
	62	Sheet	RHX-034
	63	Spacer A	RHC1044
	64	Connection cord with mini plug	PDE1267
	65	Spacer	REC1055
	66	Acetate tape	REH1028

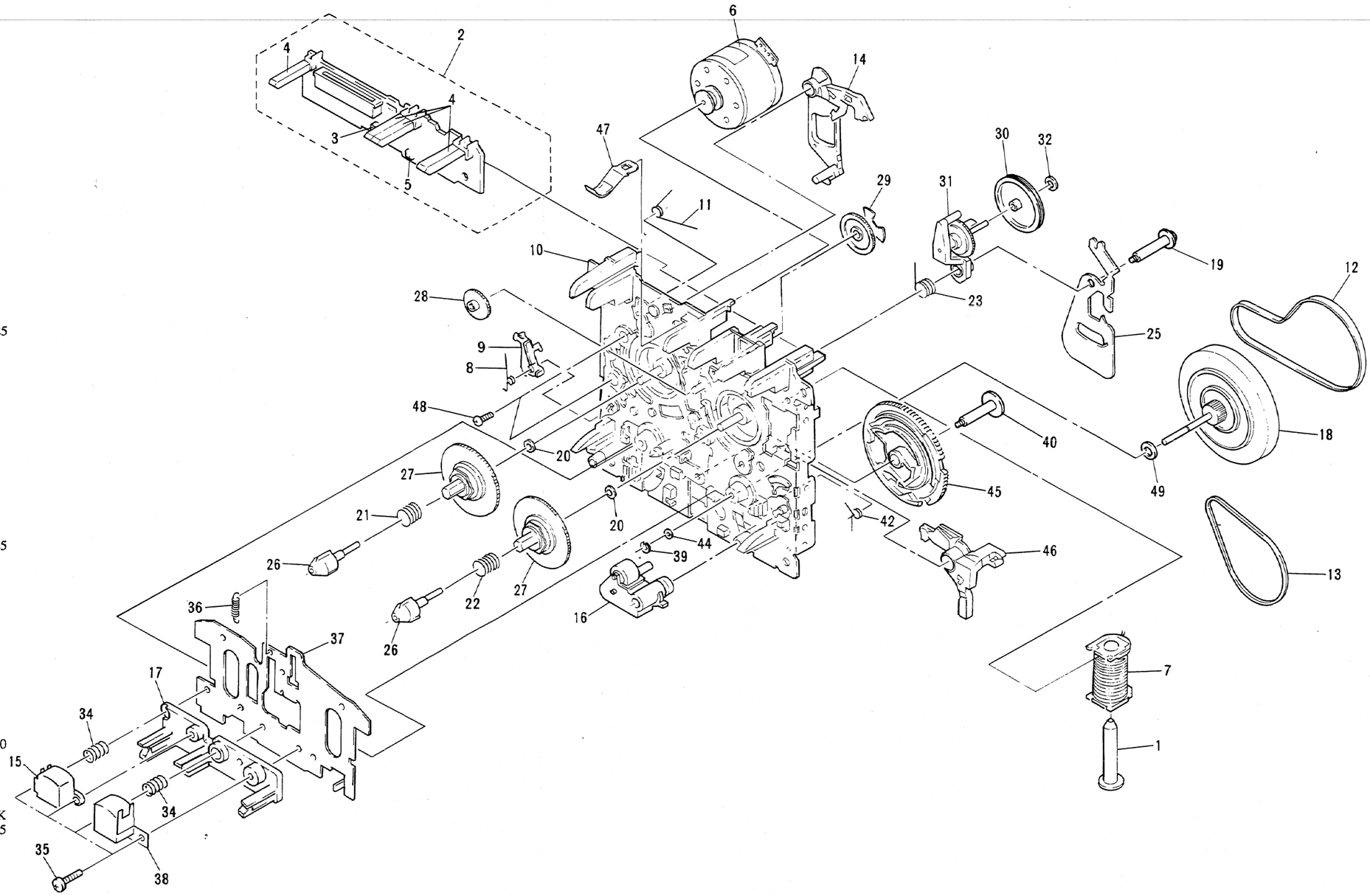


NOTE: Screws adjacent to ▼ mark on the product are used for disassembly.

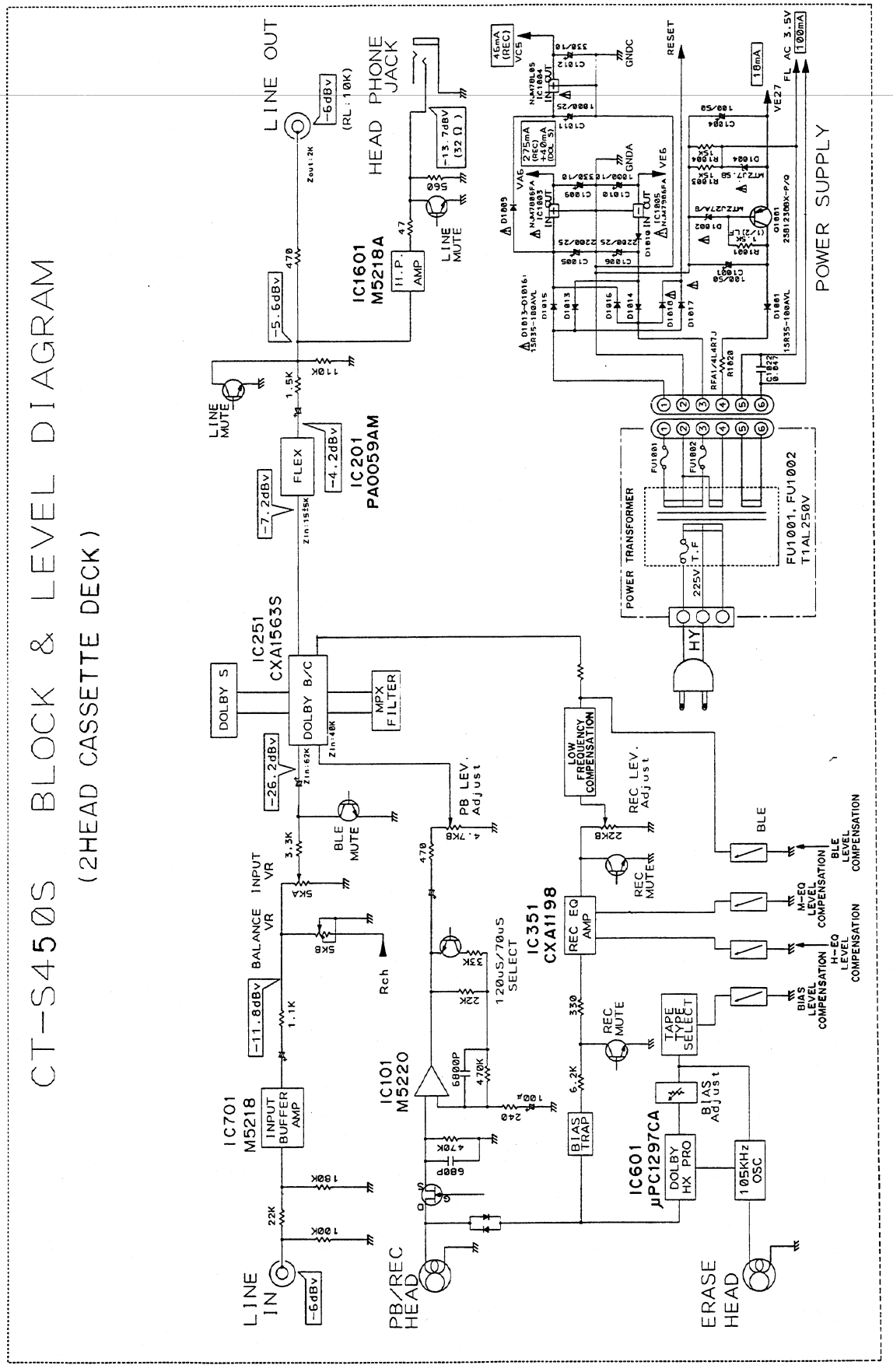
1.2 MECHANISM UNIT

Parts List

Mark	No.	Description	Parts No.
	1	Plunger	RLA1288
	2	PCB Control BLK	RXA1625
	3	Push Switch	RSG1018
	4	SPLF	RSN1023
	5	Photo-Transistor	SPI33534FG
	6	MTR Main BLK	RXM1081
	7	Solenoid BLK	RXP1021
	8	Spring Interlock L	RBH1385
	9	Arm Interlock L	RNE1780
	10	Chassis Base BLK	RXA1627
	11	Spring Brake	RBH1387
	12	Main Belt	REB1163
	13	F/R Belt	REB1254
	14	Lever Brake	RNK2071
	15	E Head	RPB1060
	16	Pinch Roller BLK R	RXA1630
	17	Head Spacer	RNK1631
	18	Clutch Assy BLK	RXA1631
	19	Screw	RBA1120
	20	Washer	WA41D065D025
	21	Spring Reel (L)	RBH1388
	22	Spring Reel (R)	RBH1389
	23	Cam Spring	RBH1393
	24	.....	
	25	Lever F/R	RNE1782
	26	Reel Feather	RNK2072
	27	Reel Base	RNK2073
	28	Play Gear (A)	RNK2074
	29	FF Gear (A)	RNK2075
	30	F/R Pulley	RNK2076
	31	Clutch Assy BLK	RXA1632
	32	Washer	WA17D040D025
	33	.....	
	34	Spring (Azimuth)	RBH1076
	35	F Lock Screw	RBA1031
	36	Spring HB	RBH1390
	37	Head Base	RNE1784
	38	R/P Head	RPB1056
	39	Stop Ring	YE15FUC
	40	Screw	RBA1121
	41	.....	
	42	Spring Arm Play	RBH1391
	43	.....	
	44	Washer	WA26D047D050
	45	Cam Gear	RNK2078
	46	Arm Play	RNK2079
	47	Spring Cassette	RNE1786
	48	Screw	BMZ26P040FZK
	49	Washer	WA26D045D025



2. BLOCK DIAGRAM



3. ADJUSTMENTS

1. MECHANICAL ADJUSTMENT

1. Tape speed Adjustment			
Mode	Test tape	Adjustment position	Specification rating (playback frequency)
PLAY	Play the STD-301 tape (3kHz)	VR852	3000Hz ± 5Hz

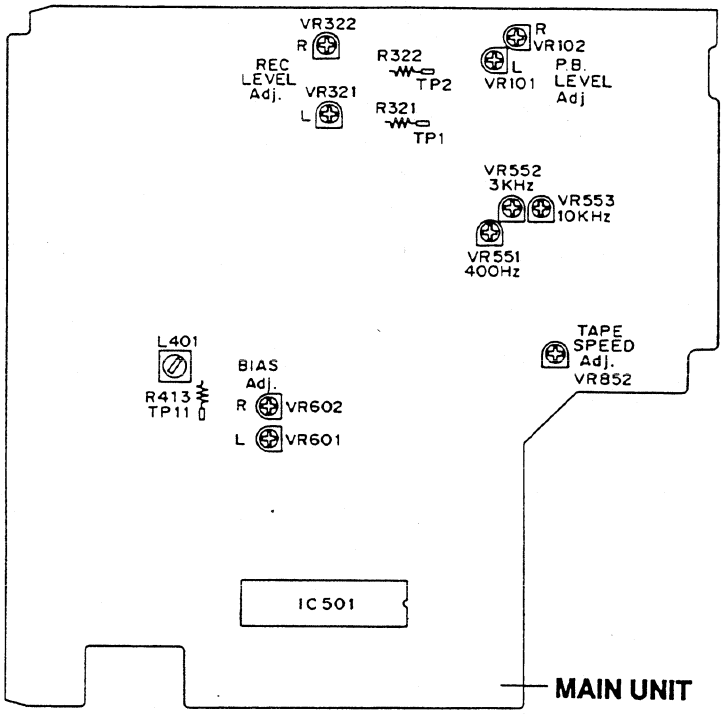


Fig. 1 Adjusting points

● Before performing the head azimuth adjustment

Remove the azimuth cover before performing this adjustment.

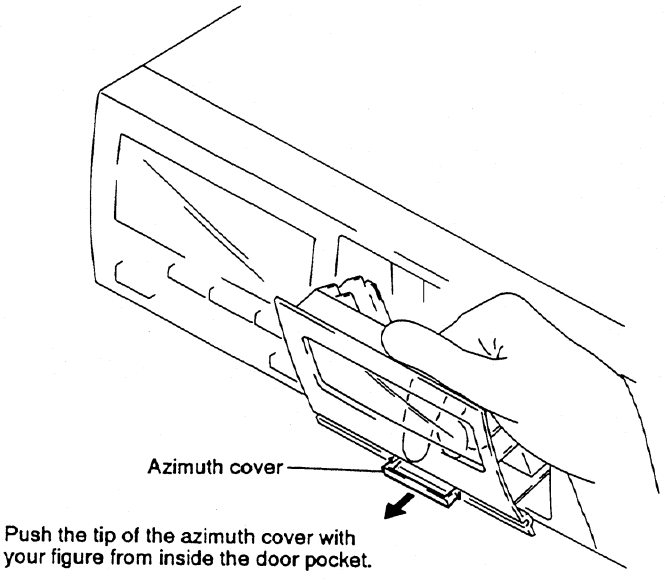


Fig. 2 Removal of azimuth cover

2. ELECTRICAL ADJUSTMENTS

Adjustment Conditions

1. The mechanical adjustments must be completed first.
2. The head must be cleaned and demagnetized.
3. Turn power on allow the deck to warm up for at least a few minutes before commencing any electrical adjustments.
4. The reference signal is 0 dBV=1 Vrms.
5. Connect a 10 kΩ load resistance to the OUTPUT terminals.
6. Unless otherwise specified, the switches listed below are left in the positions indicated.
   DOLBY NR : OFF
   TAPE SELECTOR : NORM

Test Tapes

STD–331E : Playback adjustments (See Fig. 3)
STD–632 : NORMAL blank tape
STD–621 : CrO_2 blank tape
STD–610 : METAL blank tape

* As the reference recording level is 250 nwb/m for STD–331E, the recording level will be higher by 4 dB for STD–331B (160 nwb/m). When adjusting, pay carefull attention to the type of tape used.

List of Adjustments

Playback sections

1. Head azimuth adjustment.
2. Playback level adjustment.

Recording sections

1. Bias oscillator adjustment.
2. Recording bias adjustment.
3. Recording level adjustment.
4. Level meter check
5. AUTO BLE adjustment.

NOTE: This unit has an automatic tape selection feature.

Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.
"DOLBY", the double-D symbol and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

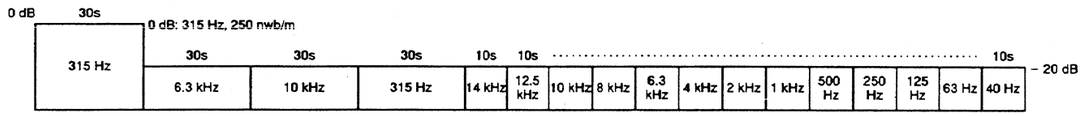


Fig. 3 Constants of the test tape STD–331E

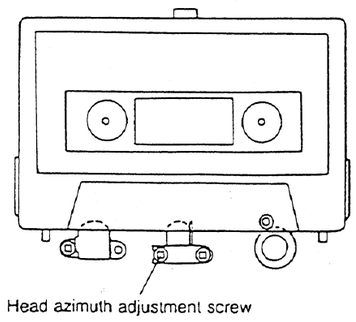


Fig. 4 Head azimuth adjustment

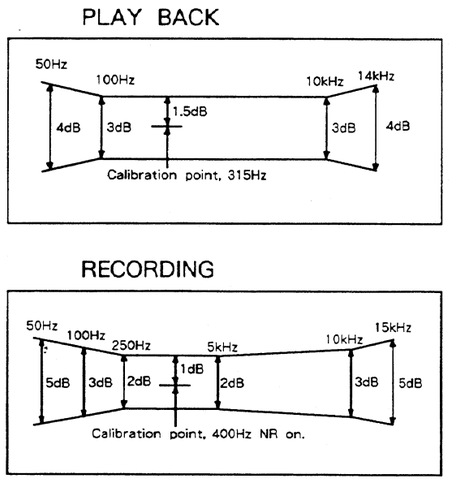


Fig. 5 Frequency response zone

PLAYBACK SECTION

1. Head Azimuth Adjustment

- Turn VR101, 102 to mechanical center positions.

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 10 kHz/–20 dB section of STD–331E test tape.	Head azimuth adjustment screw. (See Fig. 4)	LINE OUT	Maximum playback signal level.	
2.	STOP	Lock the screw with screw lock after completing adjustment.				

2. Playback Level Adjustment

- This adjustment determines the DOLBY NR level, and must be performed with great care.

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 315 Hz/0 dB section of the STD–331E test tape.	Deck	VR101 (Lch) VR102 (Rch)	TP. 1 (Lch) TP. 2 (Rch)	–8.7 dBV	This adjustment must be performed accurately for proper Dolby level setting.

RECORDING SECTION

1. Bias Oscillator Adjustment

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC	Load the STD–610 test tape with no input signal.	Deck	L401	TP. 11	105 kHz ± 0.3 kHz	

2. Recording Bias Adjustment

- After the adjustment, caution should be exercised so as not to become under bias by checking the distortion rate.

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC	Load the STD–632 test tape. Record the 315 Hz and 6.3 kHz signals at –26 dBV input level and playback.	Deck	VR601 (Lch) VR602 (Rch)	LINE OUT	Repeatedly record, playback and adjust so that the playback level of 6.3 kHz signal becomes + 0.5dB ± 0.5 dB when compared with the 315 Hz signal.	

3. Recording Level Adjustment

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC/ PAUSE	Apply a 315 Hz signal to the line input terminals, load the STD–632 test tape.	Volume of the output level of the oscillator		TP. 1 (Lch) TP. 2 (Rch)	–11.2 dBV	
2.	REC/ PLAY	Record the above signal onto the STD–632 test tape, and playback.	Deck	VR321 (Lch) VR322 (Rch)		Repeatedly record, playback and adjust so that the playback signal level becomes –11.2dBV.	
3.	REC/ PLAY	Record the above signal onto the STD–621 test tape, and playback.	Check			–11.2 dBV ± 1.5 dB	
4.	REC/ PLAY	Record the above signal onto the STD–610 test tape, and playback.	Check			–11.2 dBV ± 1.5 dB	

PLAYBACK SECTION

1. Head Azimuth Adjustment

- Turn VR101, 102 to mechanical center positions.

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 10 kHz/–20 dB section of STD–331E test tape.	Head azimuth adjustment screw. (See Fig. 4)	LINE OUT	Maximum playback signal level.	
2.	STOP	Lock the screw with screw lock after completing adjustment.				

2. Playback Level Adjustment

- This adjustment determines the DOLBY NR level, and must be performed with great care.

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 315 Hz/0 dB section of the STD–331E test tape.	Deck	VR101 (Lch) VR102 (Rch)	TP. 1 (Lch) TP. 2 (Rch)	–6.7 dBV	This adjustment must be performed accurately for proper Dolby level setting.

RECORDING SECTION

1. Bias Oscillator Adjustment

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC	Load the STD–610 test tape with no input signal.	Deck	L401	TP. 11	105 kHz ± 0.3 kHz	

2. Recording Bias Adjustment

- After the adjustment, caution should be exercised so as not to become under bias by checking the distortion rate.

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC	Load the STD–632 test tape. Record the 315 Hz and 6.3 kHz signals at –26 dBV input level and playback.	Deck	VR601 (Lch) VR602 (Rch)	LINE OUT	Repeatedly record, playback and adjust so that the playback level of 6.3 kHz signal becomes + 0.5dB ± 0.5 dB when compared with the 315 Hz signal.	

3. Recording Level Adjustment

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC/ PAUSE	Apply a 315 Hz signal to the line input terminals, load the STD–632 test tape.	Volume of the output level of the oscillator		TP. 1 (Lch) TP. 2 (Rch)	–11.2 dBV	
2.	REC/ PLAY	Record the above signal onto the STD–632 test tape, and playback.	Deck	VR321 (Lch) VR322 (Rch)		Repeatedly record, playback and adjust so that the playback signal level becomes –11.2dBV.	
3.	REC/ PLAY	Record the above signal onto the STD–621 test tape, and playback.	Check			–11.2 dBV ± 1.5 dB	
4.	REC/ PLAY	Record the above signal onto the STD–610 test tape, and playback.	Check			–11.2 dBV ± 1.5 dB	

4. Level Meter Check

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	REC/ PAUSE	Apply a 315 Hz signal to the line input terminals.	Volume of the output level of the oscillator	TP. 1 (Lch) TP. 2 (Rch)	Check that the level meters "0 dB" light up within –7.2 dBV ± 2 dB of the signal output level.	

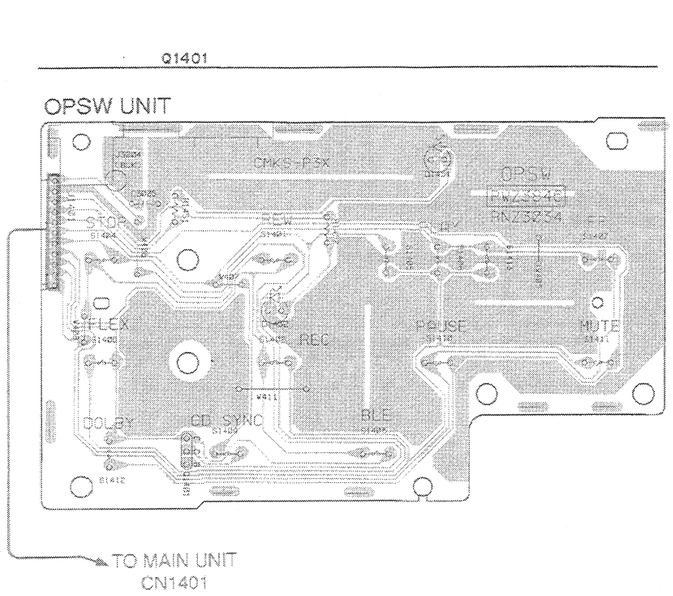
5. AUTO BLE Adjustment

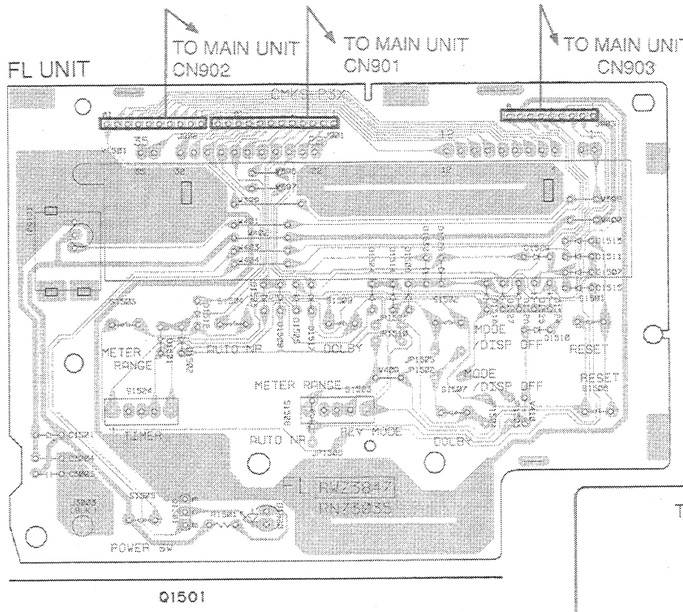
- BLE adjustment should be performed after all other adjustments are completed.
- This adjustment should be performed in the test mode.
- Entering the Test Mode.
  Turn on the power, and after more than 4 seconds, press the "COUNTER RESET" button, "COUNTER MODE" button and ▮▮ (PAUSE) button simultaneously.
- Releasing the Test Mode.
  Press the "COUNTER RESET" button.

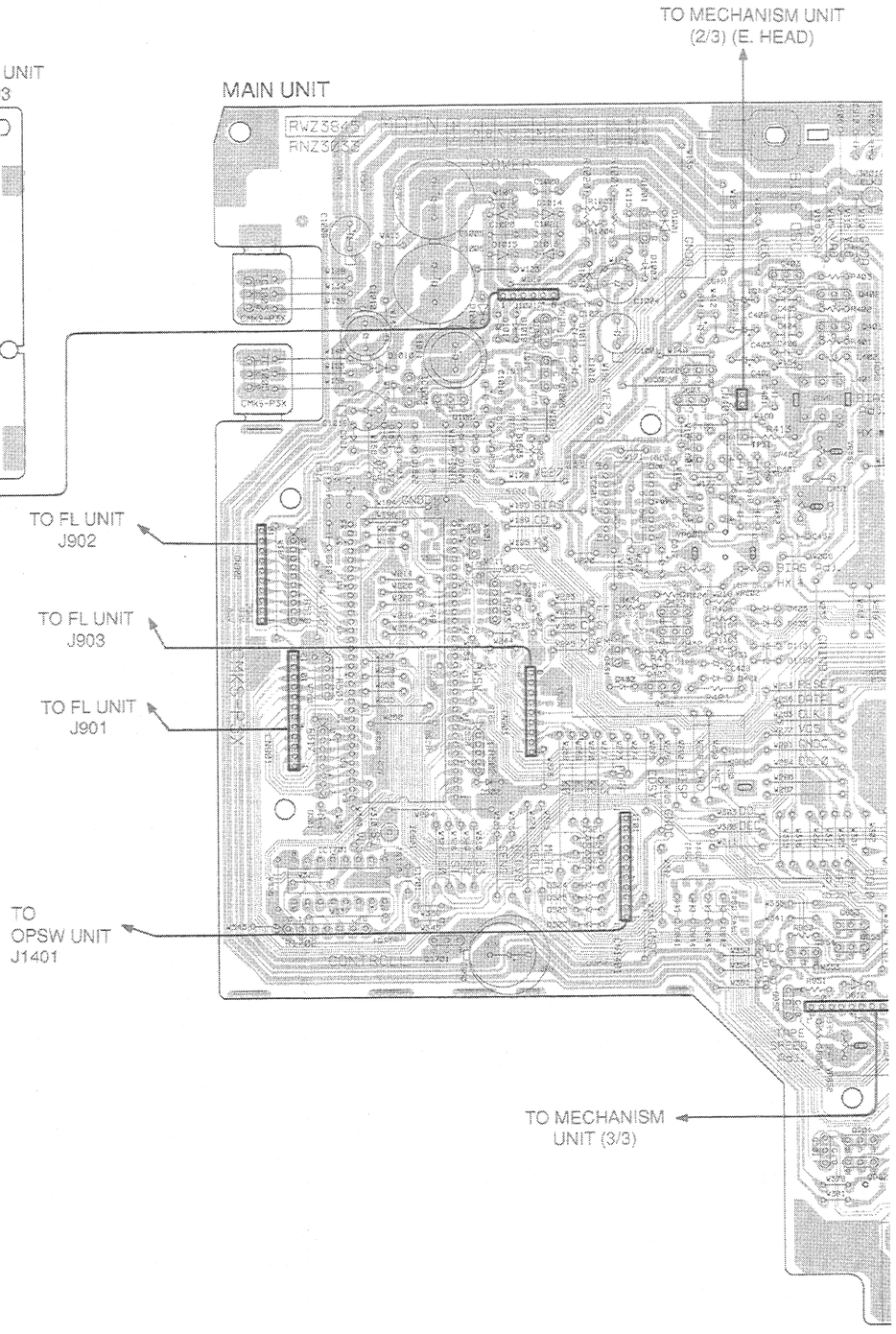
No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	–	Set to test mode.	–	–	–	
2.		Press the AUTO BLE key on the front panel.	Level meter Rch	VR551	Adjust the Lch segment which is lit until Rch is not lighting up. Lch ■→□ Rch ■■□■■ (■: light up □: not light up)	400 Hz adjustment (Test mode 1 FL indication 1)
3.		Press the AUTO BLE key on the front panel.		VR552		3 kHz adjustment (Test mode 2 FL indication 2)
4.		Press the AUTO BLE key on the front panel.		VR553		10 kHz adjustment (Test mode 3 FL indication 3)

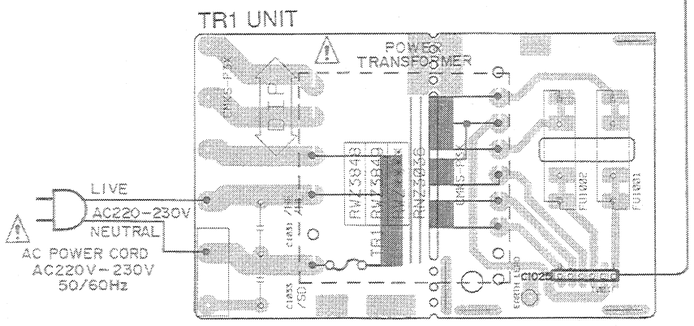
4. SCHEMATIC AND PCB CONNECTION DIAGRAMS

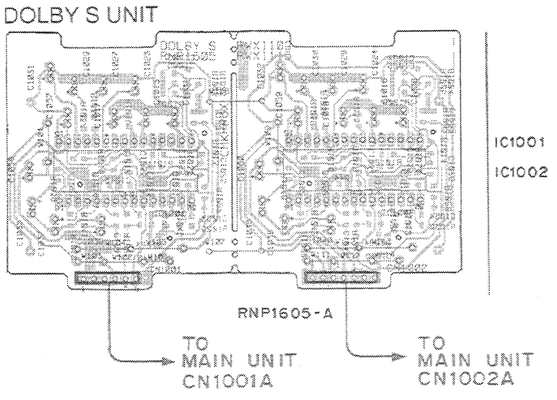
• This diagram is viewed from the mounted parts side.





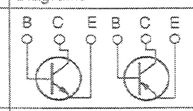
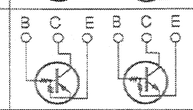
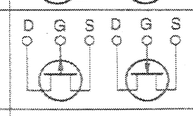
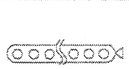
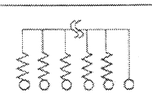
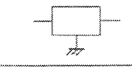






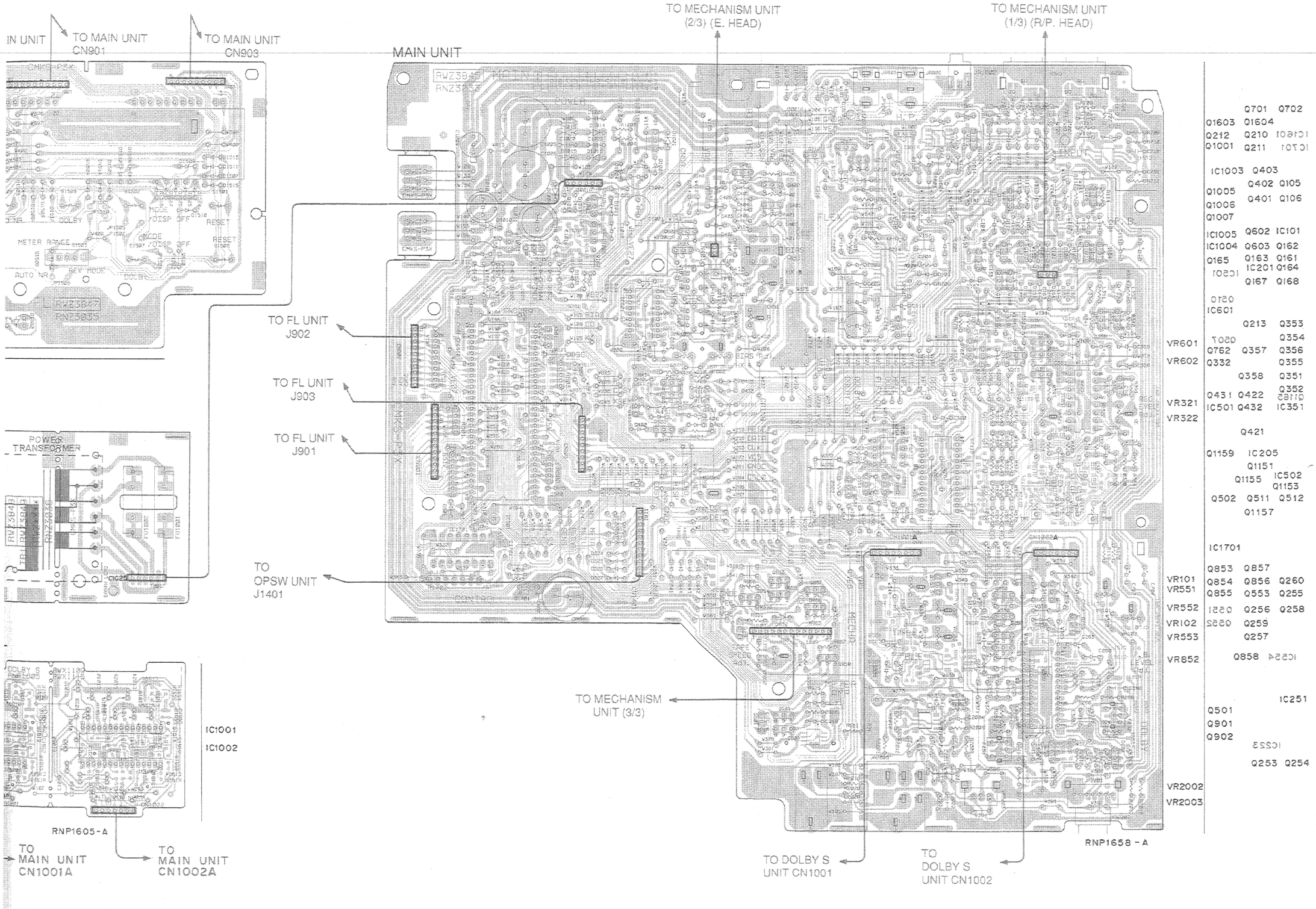
NOTE FOR PCB DIAGRAMS:

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

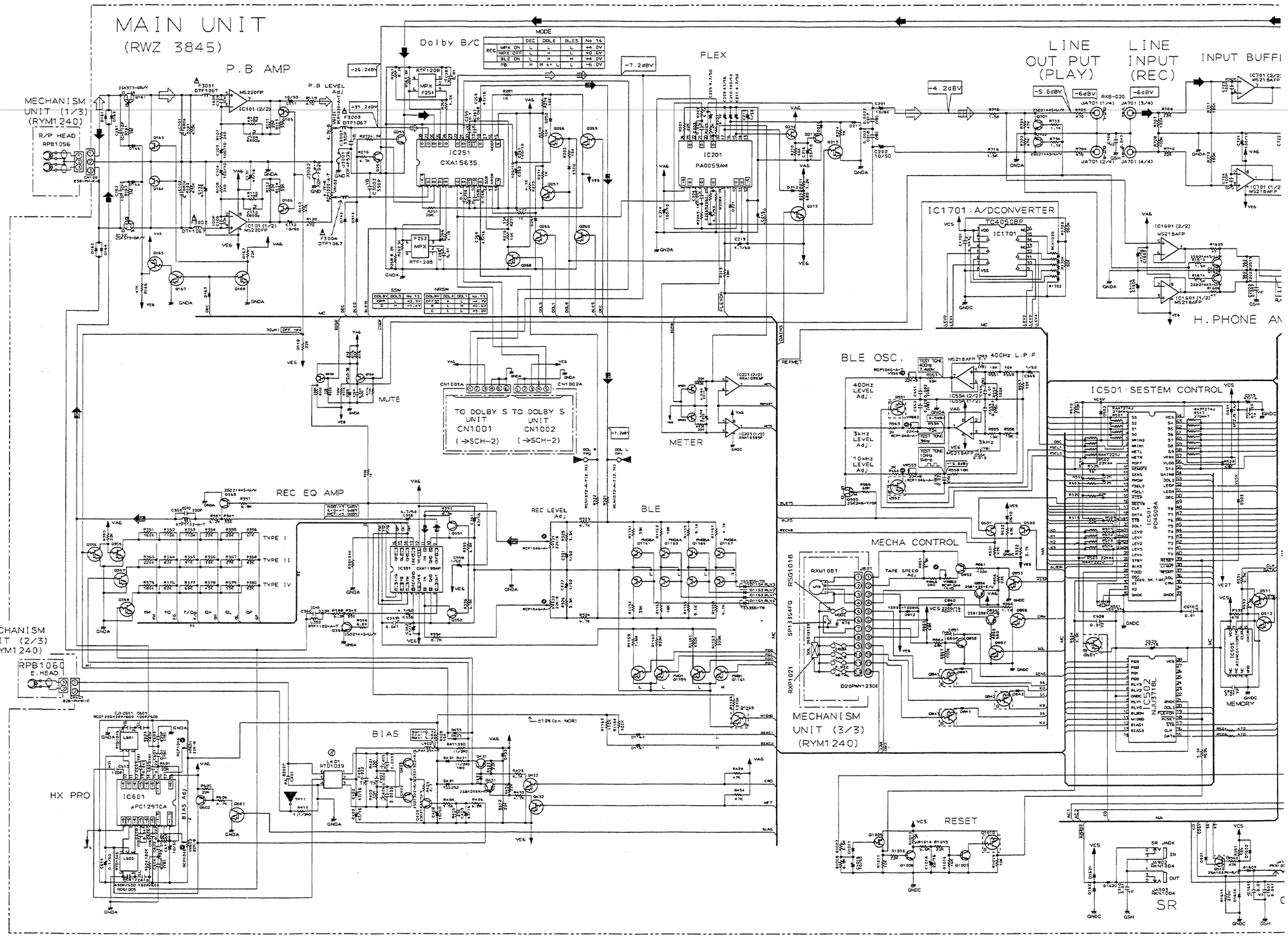
Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3- terminal regulator

• The parts mounted on this PCB include all necessary parts for several destinations. For further information for respective destinations, be sure to check with the schematic diagram.

- **This diagram is viewed from the mounted parts side.**



4.1 MAIN, OPSW, FL AND TR 1 UNIT



SCH-1 MAIN UNIT, OPSW UNIT, FL UNIT, TR 1 UNIT

SCH-1

SIGNAL RUTE

⇨ : PLAYBACK SIGNAL

➡ : RECORDING SIGNAL

⇶ : RECORDING MONITOR SIGNAL

MODE

		DEC	DOL.0	BLES	No.16
REC	MPX ON	L	L	L	+4.6V
	MPX OFF	L	H	L	+0.6V
	BLE ON	L	H	H	+4.6V
PB		H	H or L	L	-6.0V

NPSW

	DOL.0	DOL.1	No.16
L	L	L	+0.6V
H	L	H	+4.6V
L	H	L	+0.6V
H	H	H	-6.0V

NOTE
If the parts are not identified in the diagram the followings are used.

- 2SC5311A-R/S
- 2SA1309A-R/S
- DTC114TS
- DTA114TS
- DTC124ES, DTC124EK (CHIP)
- DTA124ES, DTA124EK (CHIP)
- 1SS254

FU1001, FU1002
T1AL250V
REK1022

MAIN UNIT,
OPSW UNIT,
FL UNIT,
TR 1 UNIT

SCH-1

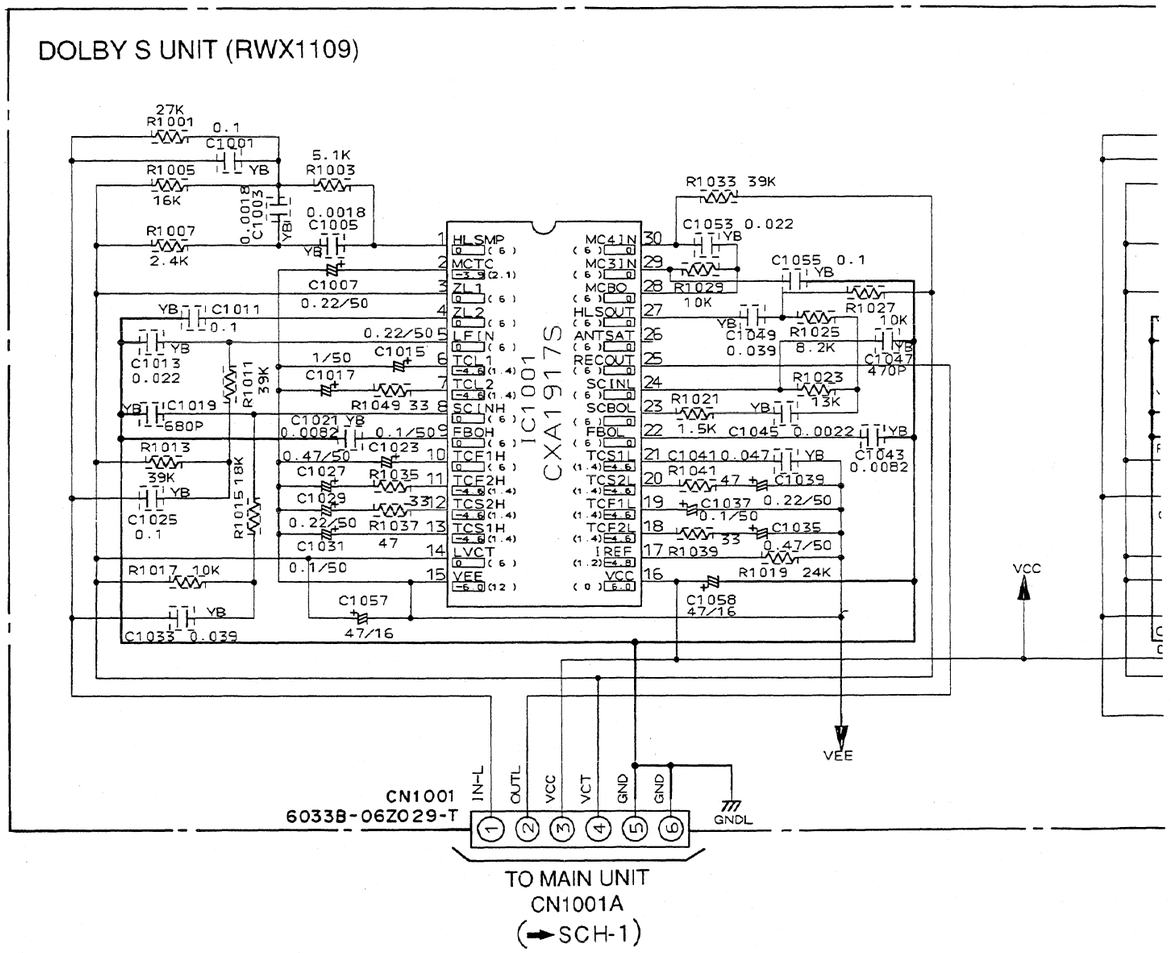
NOTE FOR SCHEMATIC DIAGRAMS (Type 6A)

1. **When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".**
2. **Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.**
3. **RESISTORS:**
   Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
   Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
   Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.
4. **CAPACITORS:**
   Unit: p:pF or µF unless otherwise noted.
   Ratings: capacitor (µF)/ voltage (V) unless otherwise noted.
   Rated voltage: 50V except for electrolytic capacitors.
5. **COILS:**
   Unit: m:mH or µH unless otherwise noted.
6. **VOLTAGE AND CURRENT:**
   ⌐ or ← V :
   DC voltage (V) in STOP mode unless otherwise noted.
   ⇦ mA or ← mA :
   DC current in STOP mode unless otherwise noted.
7. **OTHERS:**
   - ⊘ or ◉ : Adjusting point.
   - ◁ : Measurement point.
   - The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
8. **SCH—□ ON THE SCHEMATIC DIAGRAM:**
   - SCH—□ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)
9. **SWITCHES** (Underline indicates switch position):

OPSW UNIT
S1401 : ◄◄/MS REW
S1402 : ● REC
S1403 : SUPER AUTO BLE
S1404 : ■ STOP
S1406 : FLEX
S1407 : ►►/MF FF
S1408 : ► PLAY
S1409 : ▪ CD SYNCHRO
S1410 : ❚❚ PAUSE
S1411 : O REC MUTE
S1412 : DOLBY NR

FL UNIT
S1505 : POWER STANDBY/ON SW
S1506 : COUNTER RESET
S1507 : COUNTER MODE/DISP OFF
S1508 : METER RANGE

4.2 DOLBY S UNIT

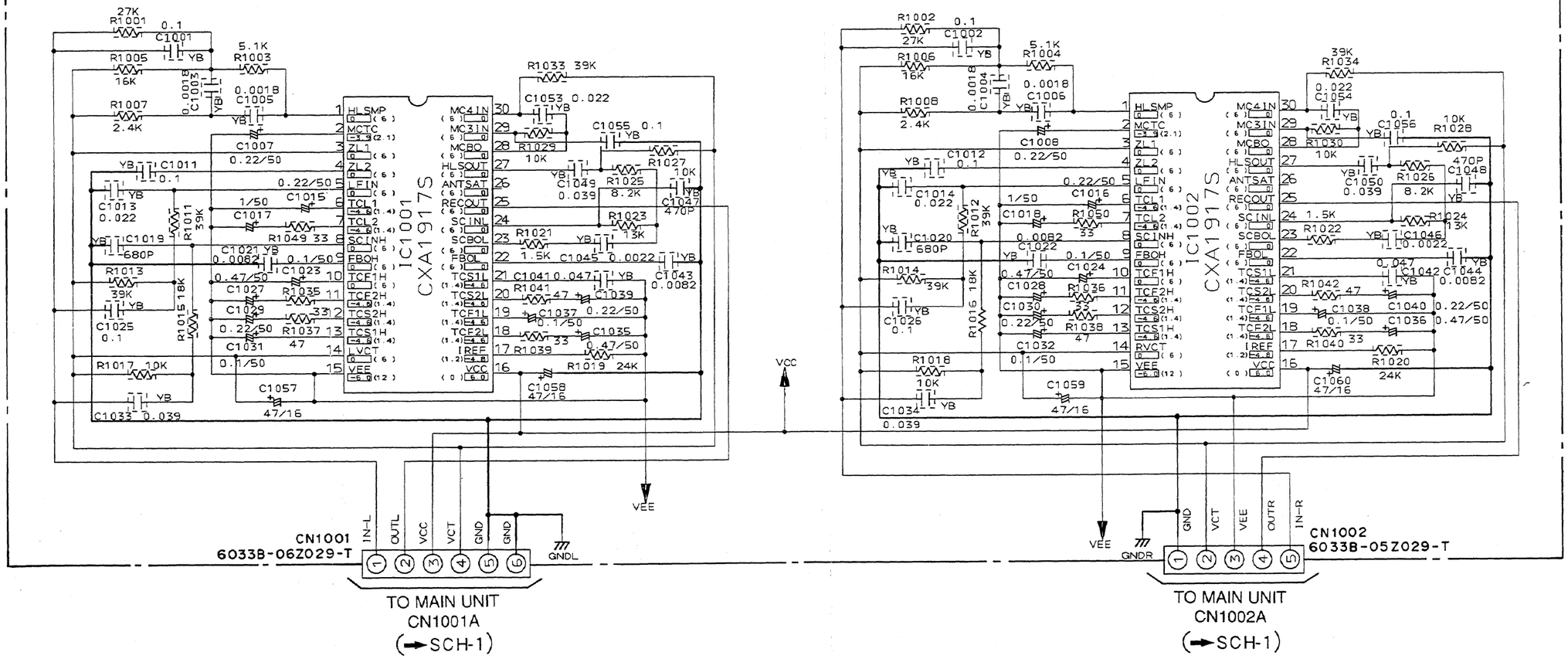


SCH-2 DOLBY S UNIT

4.2 DOLBY S UNIT

SCH-2

DOLBY S UNIT (RWX1109)



SCH-2 DOLBY S UNIT

DOLBY S UNIT SCH-2

5. PCB PARTS LIST

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by " ⊙ " are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47K ohm (tolerance is shown by J=5%, and K=10%).

560 Ω → 56 × 10¹ → 561 ..... RD1/4PU 5 6 1 J
47 kΩ → 47 × 10³ → 473 ..... RD1/4PU 4 7 3 J
0.5 Ω → 0R5 ..... RN2H 0 R 5 K
1 Ω → 1R0 ..... RS1P 1 R 0 K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62 kΩ → 562 × 10¹ → 5621 ..... RN1/4PC 5 6 2 1 F

LIST OF ASSEMBLIES

Mark	No.	Description	Parts No.
NSP		MOTHER UNIT	RWM1895
		├ MAIN UNIT	RWZ3845
		└ DOLBY S UNIT	RWX1109
		├ OPSW UNIT	RWZ3846
		├ FL UNIT	RWZ3847
		└ TR 1 UNIT	RWZ3848

MAIN UNIT

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC505		AT24C01-10PC
	IC351		CXA1198AP
	IC251		CXA1563S
	IC1601, IC554, IC701		M5218AFP
	IC101		M5220FP
⚠	IC1003		NJM7806FA
⚠	IC1004		NJM78L05A
⚠	IC1005		NJM7906FA
	IC502		NJU3718L
	IC201		PA0059AM
	IC501		PD4508A
	IC1701		TC4050BP
	IC601		UPC1297CA
	IC223		XRA10393F
	Q510		2SA1037K
	Q211, Q421, Q602, Q852		2SA1309A
⚠	Q1001		2SB1238X
	Q431, Q856		2SB1238X
	Q854		2SB1425
	Q1006, Q1007, Q253, Q254		2SC3311A
	Q351, Q352, Q858		2SC3311A
	Q401, Q402		2SD1302
	Q1603, Q1604, Q353, Q354, Q403		2SD2144S
	Q701, Q702		2SD2144S
	Q553		2SK246
	Q161, Q162		2SK373
	Q1005, Q332, Q501, Q502, Q762		DTA114TS
	Q1010, Q841-Q843		DTA124EK
	Q165		DTA124ES
	Q105, Q106, Q163, Q164, Q210		DTC114TS
	Q901, Q902		DTC114TS
	Q1165, Q507, Q551, Q552		DTC124EK
	Q167, Q168, Q212, Q213		DTC124ES
	Q255-Q260, Q355-Q358, Q422		DTC124ES
	Q432, Q511, Q512, Q603, Q853		DTC124ES
	Q855, Q857		DTC124ES
	Q1159, Q1161		FMG1
	Q1151, Q1153, Q1155, Q1157		FMG6A
⚠	D1001, D1009, D1010, D1013-D1016		1SR35-100AVL
	D812		1SR35-100AVL
	D431		1SS252
	D1011, D1017, D1018, D1152, D1153		1SS254
	D1161, D1162, D1602-D1604		1SS254
	D161, D162, D1620-D1622		1SS254
	D163-D167, D201, D210-D212		1SS254
	D251-D253, D421-D423		1SS254
	D432, D433, D502, D503, D510		1SS254
	D521-D527, D742, D841-D843		1SS254
	D913, D921		1SS254
	D1151, D1154		1SS355
⚠	D1002		MTZJ27B
	D765		MTZJ3.9B
⚠	D1004		MTZJ7.5B
	D501		MTZJ9.1A

COILS AND FILTERS

Mark	No.	Description	Parts No.
⚠	F3001-F3004		DTF1067
	L402		LFA121J
	L401		RTD1039
	L601, L602 (4.6μH/105kHz)		RTD1046
	L351, L352 (10μH)		RTF1102
	F251, F252		RTF1208

CAPACITORS

Mark	No.	Description	Parts No.
	C609, C610		CCCSL101K500
	C161, C162		CCSQCH100D50
	C105, C106, C613, C723, C724		CCSQCH101J50

CT-S450S

Mark	No.	Description	Parts No.
	C359, C360		CCSQCH221J50
	C213, C321, C322, C358, C555		CEAS010M50
	C1016, C111, C112, C201, C202		CEAS100M50
	C408, C617, C707, C708		CEAS100M50
	C103, C104, C210, C214-C216		CEAS101M10
	C261, C262, C721, C722		CEAS101M10
	C1001, C1004		CEAS101M50
	C1010		CEAS102M10
	C1018		CEAS220M16
	C1009, C1012		CEAS331M10
	C131, C132, C1603, C1604, C209		CEAS470M16
	C259, C260, C361, C362		CEAS470M16
	C402, C403, C409, C513, C520		CEAS470M16
	C205, C206, C211, C219		CEAS4R7M50
	C355, C356, C917, C918		CEAS4R7M50
	C614		CEASR10M50
	C203, C204, C287, C288		CFTYA103J50
	C255, C256		CFTYA104J50
	C404		CFTYA223J50
	C257, C258		CFTYA683J50
	C3001, C3002		CKCYB331K50
	C1606, C509, C510, C514, C521		CKCYF103Z50
	C910		CKCYF103Z50
	C1008, C1020-C1022, C1607, C1701		CKCYF473Z50
	C2020, C357, C706		CKCYF473Z50
	C554, C601, C602		CKSQYB103K50
	C503		CKSQYB104K25
	C504		CKSQYB123K50
	C217, C218		CKSQYB222K50
	C505, C552, C605, C606		CKSQYB223K50
	C553		CKSQYB472K50
	C607, C608		CKSQYB473K50
	C851		CKSQYB681K50
	C603, C604		CKSQYB821K50
	C551		CKSQYB823K25
	C769		CKSQYF473Z50
	C405, C406		CQMA332J50
	C407		CQMA472J50
	C101, C102		CQMA681J50
	C109, C110		CQMA682J50
	C401		CQPA822J100
	C860 (2200μF/16V)		PCH1114
	C611, C612 (430pF/500V)		RCG1005
	C1011 (1000μF/ 25V)		RCH1113
	C1005, C1006 (2200μF/25V)		RCH1114

RESISTORS

	R502, R503	RA4T223J
	R501	RA4T274J
	R517	RA7T274J
	R1702 (11kΩ)	RCX1020
	R413	RD1/2LMF010J
	R1001	RD1/2LMF152J
	R421	RD1/2LMF181J
	R411	RD1/2LMF391J

Mark	No.	Description	Parts No.
	R1164, R707, R708, R867		RD1/6PM104J
	R2015, R2016, R265, R266		RD1/6PM112J
	R733, R734, R860		RD1/6PM112J
	R1163, R352, R353		RD1/6PM114J
	R1613, R1614, R715, R716		RD1/6PM152J
	R1003, R1004, R401, R402, R408		RD1/6PM153J
	R351		RD1/6PM154J
	R375, R711, R712		RD1/6PM184J
	R355		RD1/6PM203J
	R111, R112, R201, R350, R354		RD1/6PM223J
	R709, R710, R925, R926		RD1/6PM223J
	R363		RD1/6PM224J
	R775, R776		RD1/6PM241J
	R522		RD1/6PM272J
	R367		RD1/6PM273J
	R261, R262		RD1/6PM302J
	R340, R341		RD1/6PM331J
	R325, R326, R524, R525		RD1/6PM332J
	R741, R742, R851		RD1/6PM332J
	R113, R114, R366, R379		RD1/6PM333J
	R378		RD1/6PM433J
	R1605, R1606		RD1/6PM470J
	R119, R120, R703, R704		RD1/6PM471J
	R207, R208, R323, R324		RD1/6PM472J
	R117, R424, R434, R521, R523		RD1/6PM473J
	R701, R702		RD1/6PM473J
	R101, R102, R109, R110		RD1/6PM474J
	R403		RD1/6PM4R7J
	R203, R204		RD1/6PM512J
	R356		RD1/6PM513J
	R2019, R2020, R855, R865		RD1/6PM561J
	R387, R388		RD1/6PM622J
	R377, R864		RD1/6PM683J
	R267, R268, R393, R394		RD1/6PM822J
	R364, R368, R376, R380		RD1/6PM823J
	R365		RD1/6PM913J
⚠	R1020		RFA1/4L4R7J
	R583, R584		RS1/8S000J
	VR101, VR102 (4.7kΩ)		RCP1020
	VR852 (1.0kΩ)		RCP1044
	VR321, VR322, VR551-VR553 (22kΩ)		RCP1046
	VR601, VR602 (22kΩ)		RCP1046
	VR2003		RCS1028
	VR2002 (5kΩ-Ax2)		RCV1095
	Other Resistors		RS1/10S□□□J

OTHERS

CN903	8P JUMPER CONNECTOR	52147-0810
CN902	10P JUMPER CONNECTOR	52147-1010
CN1401	11P JUMPER CONNECTOR	52147-1110
CN901	12P JUMPER CONNECTOR	52147-1210
CN401	KR KONNECTOR	B2B-PH-K-E
CN100	KR CONNECTOR	B3B-PH-K-E
JA1602	MINI JACK	PKN1005
JA701	4P PIN JACK	RKB-020

Mark	No.	Description	Parts No.
	JA2003	HEADPHONE JACK	RKN1002
	JA902, JA903	REMOTE CONTROL JACK	RKN1004
		PCB BINDER	VEF1008
		PCB BINDER	VEF1040
		EARTH METAL FITTING	VNF-091
	X501	CERAMIC RESONATOR (4.19MHz)	VSS1014

DLBY S UNIT

SEMICONDUCTORS

	IC1001, IC1002	CXA1917S

CAPACITORS

	C1017, C1018	CEJA010M50
	C1057-C1060	CEJA470M16
	C1023, C1024, C1031, C1032	CEJAR10M50
	C1037, C1038	CEJAR10M50
	C1007, C1008, C1015, C1016	CEJAR22M50
	C1029, C1030, C1039, C1040	CEJAR22M50
	C1027, C1028, C1035, C1036	CEJAR47M50
	C1001, C1002, C1011, C1012	CKSQYB104K25
	C1025, C1026, C1055, C1056	CKSQYB104K25
	C1003-C1006	CKSQYB182K50
	C1045, C1046	CKSQYB222K50
	C1013, C1014, C1053, C1054	CKSQYB223K50
	C1033, C1034, C1049, C1050	CKSQYB393K50
	C1047, C1048	CKSQYB471K50
	C1041, C1042	CKSQYB473K50
	C1019, C1020	CKSQYB681K50
	C1021, C1022, C1043, C1044	CKSQYB822K50

RESISTORS

	All Resistors	RS1/10S□□□J

OTHERS

	CN1002	CONNECTOR 5P	6033B-05Z029
	CN1001	CONNECTOR 6P	6033B-06Z029

OPSW UNIT

SEMICONDUCTORS

	Q1401	DTA114TS
	D1451	SLR-342MGT31
	D1452	SLR-342VRT31

SWITCHES AND RELAYS

	S1401-S1404, S1406-S1412	RSG1030

CAPACITORS

	C3005	CCCSL470J50

RESISTORS

	All Resistors	RD1/6PM□□□J

Mark	No.	Description	Parts No.

FL UNIT

SEMICONDUCTORS

	Q1501	DTC124ES
	D1512-D1515, D1526, D1529	1SS254
	D1520	SLR-342UCT31

SWITCHES AND RELAYS

	S1505-S1508	RSG1030

CAPACITORS

	C3003, C3004	CCCSL470J50

RESISTORS

	All Resistors	RD1/6PM□□□J

OTHERS

	V1501	FL INDICATOR TUBE	RAW1124

TR 1 UNIT

CAPACITORS

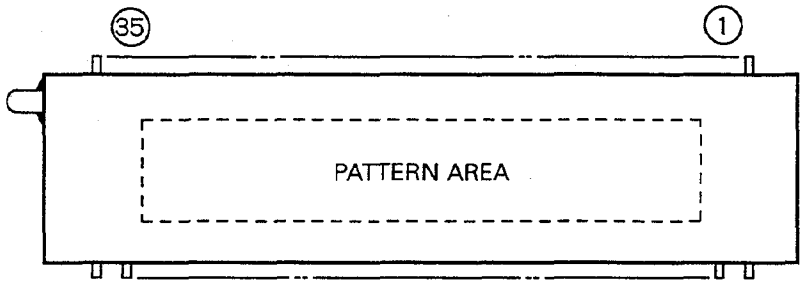
	C1025	CKSQYF223Z50
⚠	C1031 (0.01μF/400V)	VCG-044

OTHERS

	CAPACITOR COVER	REC-150
	EARTH LEAD UNIT	XDF-510

6. FL INFORMATION

■ RAW1124 (FL UNIT : V1501)

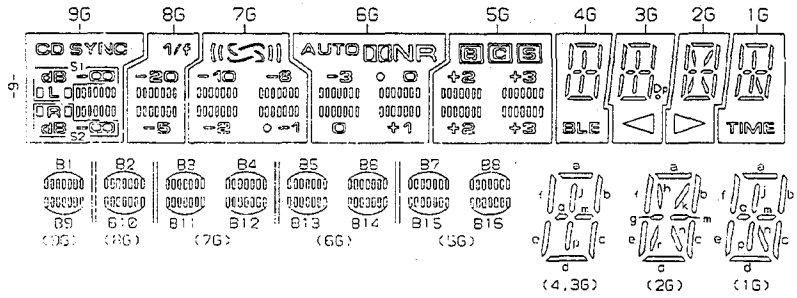


PIN CONNECTION

PIN NO.	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
CONNECTION	F2	F2	NP	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	NP	NP	NP	NP	NP	NP	NP	NP	NP	9G	8G	7G	6G	5G	4G	3G	2G	1G	NP	F1	F1

NOTE 1) F1,F2 --- Filament
2) NP ------ No pin
3) DL ------ Datum Line
4) 1G~9G --- Grid

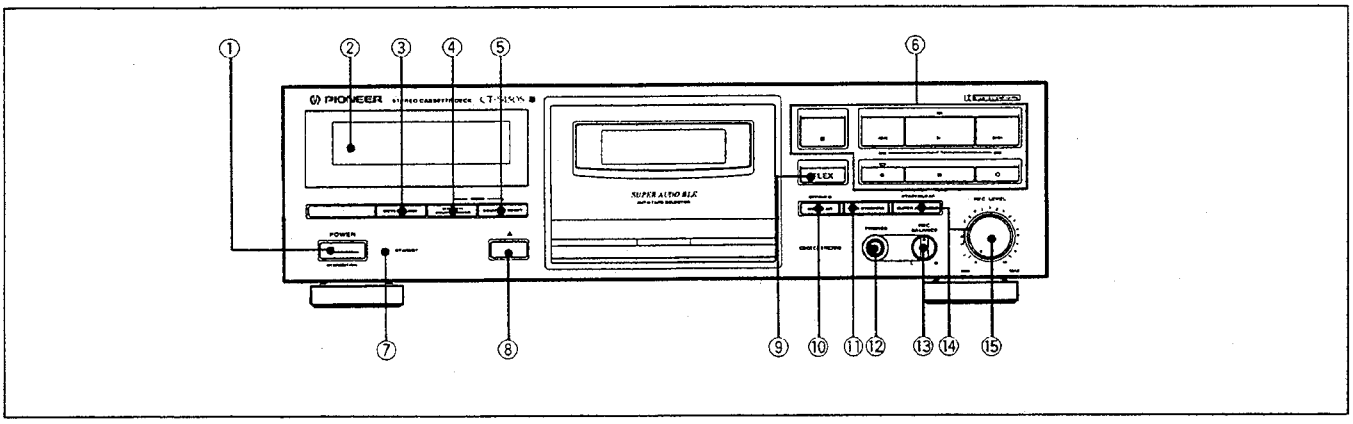
GRID ASSIGNMENT



ANODE CONNECTION

	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	B1	B2	B3	B5	B7	a	a	a	a
P2	-	-	B4	B6	B8	b	b	b	b
P3	B9	B10	B11	B13	B15	f	f	f	f
P4	-	-	B12	B14	B16	g	g	g,m	g
P5	S1	-20	-10 -6	-3 ○ ○	+2 +3	m	m	k,r	m
P6	S2	-5	-2 ○-1	○ +1	+2 +3	c	c	c	c
P7	-	-	∽	-	-	e	e	e	e
P8	-	-	∽	-	-	d	d	d	d
P9	CD SYNC	1/f	( )	-	B	j,p	j,p	h	j,p
P10	-	-	( )	DNR	C	-	Dp	n	n
P11	-	-	-	-	S	BLE	-	-	TIME

7. PANEL FACILITIES



① POWER STANDBY/ON switch
The POWER switch activates the secondary transformer only. Even when the switch is in the STANDBY position, there will be a power flow to the deck's circuits as long as the power cord is connected to a power outlet.

② Function display

③ Level meter range selector button (METER RANGE)
Press to select wide or expanded range on the level meter.

④ Display off/Tape counter mode button (DISP OFF/COUNTER MODE)
Press to select the tape counter mode, the time counter mode, or to turn the function display off. Press the button to choose between the modes or to turn the display off.

→ Display off → Display on → Display on →
(Tape counter) (Tape counter) (Time counter)

⑤ Tape counter reset button (COUNTER RESET)

⑥ Operation buttons

■	: Stop
◄◄/MS	: Rewind/music search
►	: Playback
►►/MS	: Fast forward/music search
●	: Recording
II	: Pause
O	: Recording mute

⑦ STANDBY indicator

⑧ Eject button (⏏)
- If the tape is moving (recording, playback, tape winding, etc.), press the stop (■) button before pressing this button.

⑨ FLEX button

⑩ DOLBY* NR button (OFF/B/C/S)

→ OFF → B → C → S →

*
- *Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.*
- *"DOLBY", the double-D symbol and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.*

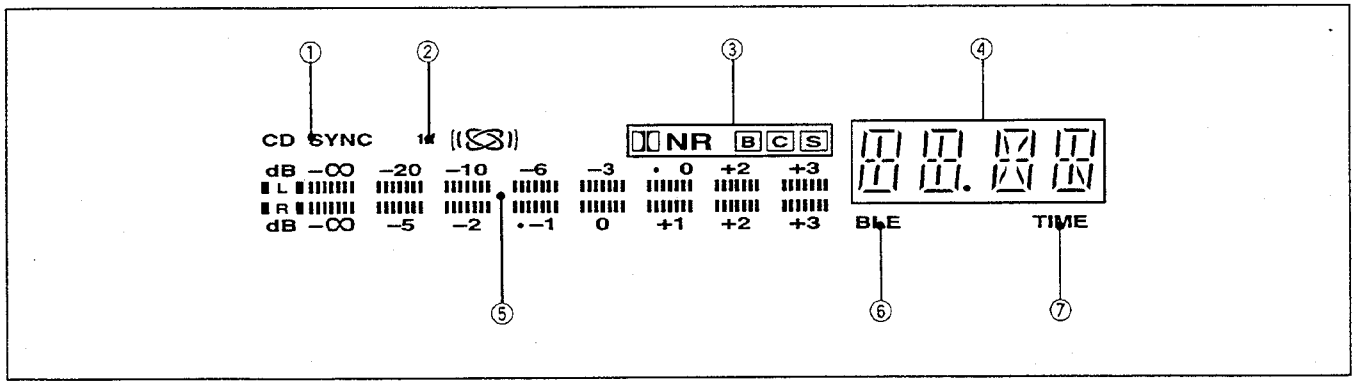
⑪ CD-DECK SYNCHRO recording button (CD SYNCHRO)

⑫ Headphones jack (PHONES)

⑬ Recording balance control (REC BALANCE)

⑭ SUPER AUTO BLE button

⑮ Recording level control (REC LEVEL)



① CD-DECK SYNCHRO indicator (CD SYNC)
Light when synchro recording from a CD player is being carried out.

② FLEX indicator (1/f)
This indicator lights when the FLEX button is pressed.

③ DOLBY NR B/C/S indicator

④ Counter indicator
Normally the tape number or time counter is displayed. Flashes for four seconds after the power cord is connected to the power supply.

⑤ Level meter with peak hold function
The • beside the −1 dB mark (at Extend mode) or 0 dB mark (at Wide mode) indicates the Dolby NR systems reference level.
Meter range:
Wide mode: −20 dB to +3dB
Expand mode: −5 dB to +3 dB
- Selected meter range is shown on the function display by pressing the METER RANGE button.

⑥ BLE indicator

⑦ TIME counter indicator
Light up in the time counter mode.

CT-S450S

8. SPECIFICATIONS

System ..... 4 track, 2-channel stereo
Heads ..... "Hard Permalloy" recording/playback head x 1
"Ferrite" erasing head x1
Motor ..... DC servo motor x 1
Wow and Flutter ..... 0.070% (WRMS, JIS)
±0.18% (DIN)
Fast Winding Time ..... Approx. 100 seconds (C-60 tape)
Frequency Response (at –20 dB recording level)
TYPE IV (Metal) tape ..... 25 to 18,000 Hz (±6 dB)
TYPE II (High/CrO_2) Tape ..... 25 to 17,000 Hz (±6 dB)
TYPE I (Normal) Tape ..... 25 to 17,000 Hz (±6 dB)
Signal-to-Noise-Ratio
Dolby NR off ..... More than 57 dB
Noise Reduction Effect
Dolby B-type NR ON ..... More than 10 dB (at 5 kHz)
Dolby C-type NR ON ..... More than 19 dB (at 5 kHz)
Dolby S-type NR ON ..... More than 22 dB (at 5 kHz)
Harmonic Distortion ..... No more than 1.0%
(at –4 dB: 160 nwb/m)
Input (Sensitivity)
LINE (INPUT) ..... 100 mV (Input impedance 67 kΩ)
Output (Reference level)
LINE (OUTPUT) ..... 0.5 V (Output impedance 2.2 kΩ)
Headphone (PHONES) ..... 1.33 mW (Load Impedance 32 Ω)

Miscellaneous

Power requirements ..... AC 220 - 230 V, 50/60 Hz
Power consumption
CT-S450S ..... 16 W
Dimentions ..... 420 (W) x125 (H) x 280 (D) mm
Weight (without packages)
CT-S450S ..... 3.8 kg

Subfunctions

- CT-S450S: Dolby B-type C-type and S-type NR systems
- DOLBY HX PRO system
- Auto tape selector (TYPE I, II, IV)
- Headphones jack
- 4-digit electronic tape/time counter
- Music search up to ±15 selections
- Automatic space recording mute
- SUPER AUTO BLE tuning system
- FL level meter 7 + 1 segments (with peak hold)
- SR System remote control available
- CD•DECK SYNCHRO function
- FLEX system
- Display off
- Last memory
- Timer play

Accessories

Operating instructions 1
Connection cord with pin plugs 2
SR Remote control cord 1
CD•DECK SYNCHRO control cord 1

NOTE:
Specifications and design subject to possible modifications without notice, due to improvements.

PIONEER®
The Art of Entertainment

Service Manual

ORDER NO.
RRV1532

STEREO CASSETTE DECK

CT-S450S

● Refer to the service manual RRV1497 for CT-S450S/HYXJ.

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	The voltage can be converted by the following method.
	CT-S450S		
HVXJ	O	AC230–240V	AC220–230V, *
SDXJ	O	AC110V/120–127V/220V/230–240V	With the voltage selector
SLXJ	O	AC110V/120–127V/220V/230–240V	With the voltage selector

*: Alter the wiring of the Power-supply block at the primary winding of power transformer referring to the "Line Voltage Selection" described in Service Manual.

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE, INC. P.O. Box 1760, Long Beach, CA 90801-1760, U. S. A.
PIONEER ELECTRONIC (EUROPE) N.V. Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 501 Orchard Road, #10-00 Lane Crawford Place, Singapore 0923
© PIONEER ELECTRONIC CORPORATION 1996
T-SZR MAR. 1996 Printed in Japan

1. CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47K ohm (tolerance is shown by J=5%, and K=10%).

560 Ω → 56 × 10¹ → 561 ..... RD1/4PU 5 6 1 J
47 kΩ → 47 × 10³ → 473 ..... RD1/4PU 4 7 3 J
0.5 Ω → 0R5 ..... RN2H 0 R 5 K
1 Ω → 1R0 ..... RS1P 1 R 0 K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62 kΩ → 562 × 10¹ → 5621 ..... RN1/4PC 5 6 2 1 F

■ CONTRAST OF HVXJ, SDXJ, SLXJ AND HYXJ TYPES

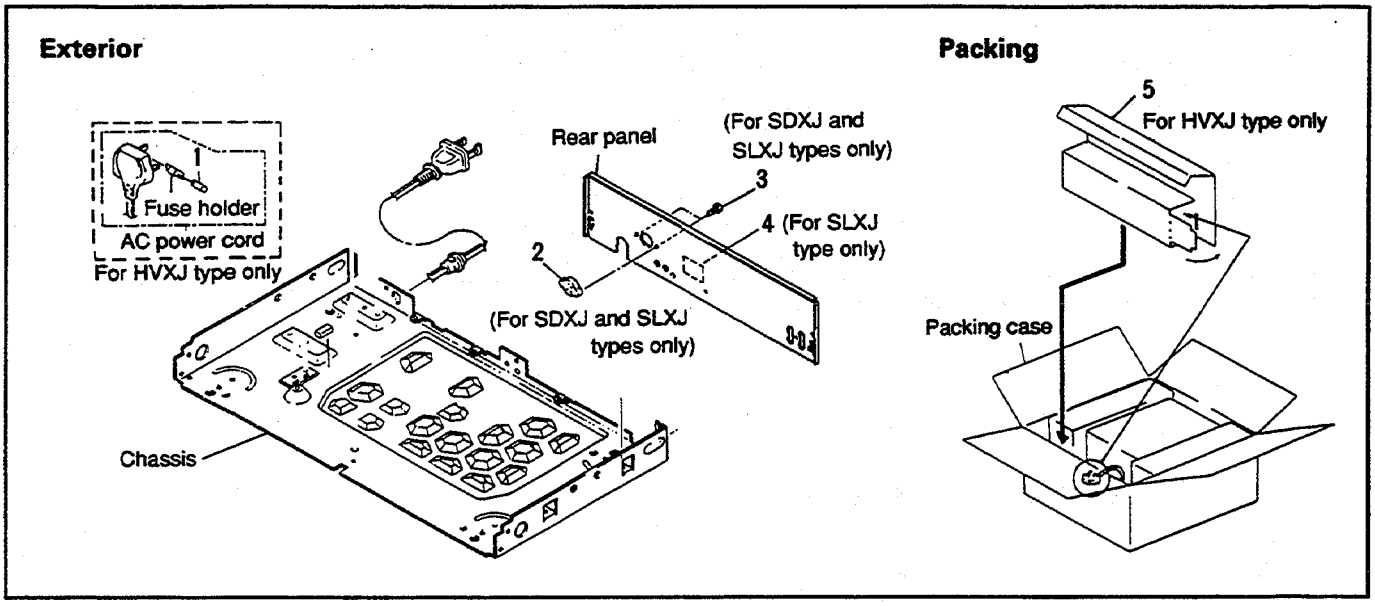
HVXJ, SDXJ, SLXJ and HYXJ types have the same construction except for the following:

Mark	Symbol & Description	Part No.				Remarks
		HYXJ type	HVXJ type	SDXJ type	SLXJ type	
NSP	MOTHER UNIT	RWM1895	RWM1905	RWM1795	RWM1795	
	MAIN UNIT	RWZ3845	RWZ3845	RWZ3462	RWZ3462	
	OPSW UNIT	RWZ3846	RWZ3846	RWZ3463	RWZ3463	
	FL UNIT	RWZ3847	RWZ3847	RWZ3464	RWZ3464	
	TR 1 UNIT	RWZ3848	RWZ3849	RWZ3467	RWZ3467	
NSP	TR 2 UNIT	Not Used	RWZ3850	Not Used	Not Used	*1
⚠	Power transformer (AC220-230V/230-240V)	RTT1254	RTT1254	Not Used	Not Used	
⚠	Power transformer (AC110V/120-127V/220V/230-240V)	Not Used	Not Used	RTT1255	RTT1255	
⚠	AC Power cord	PDG1043	PDG1055	ADG1157	PDG1043	
⚠	Fuse (T5A) (For AC Power cord)	Not Used	PEK1003	Not Used	Not Used	*2 No. 1
	FL lens	RAH2413	RAH2413	RAH2414	RAH2414	
	Rear panel	RNA2035	RNA2044	RNA2062	RNA2076	
⚠	Line voltage selector (AC110V/120-127V/220V/230-240V)	Not Used	Not Used	RSB1022	RSB1022	*2 No. 2
	Screw	Not Used	Not Used	BBZ30P080FMC	BBZ30P080FMC	*2 No. 3
	Operating instructions (English/German)	RRE1135	Not Used	Not Used	Not Used	
	Operating instructions (French/Italian/Dutch/Spanish/ Portuguses/Swedish)	RRD1183	Not Used	Not Used	Not Used	
	Operating instructions (English)	Not Used	RRB1172	RRB1172	RRB1172	
	Operating instructions (Spanish/Chinese)	Not Used	Not Used	RRD1184	RRD1184	
NSP	SISIR label	Not Used	Not Used	Not Used	RRW1251	*2 No. 4
	Packing case	RHG1734	RHG1735	RHG1736	RHG1736	
	Rear spacer (PAPER)	Not Used	RHC1066	Not Used	Not Used	*2 No. 5

*1: Refer to "2. SCHEMATIC AND PCB DIAGRAMS".

*2: The numbers in the remarks column correspond to the numbers on the exploded diagram. Refer to "EXPLODED VIEWS"

• EXPLODED VIEWS



■ CONTRAST OF PCB ASSEMBLIES

MAIN UNIT

RWZ3462 and RWZ3845 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		RWZ3845	RWZ3462	
	IC101	M5220FP	NJM4580ED	
⚠	F3001-F3004	DTF1067	Not Used	
	C3001, C3002	CKCYB331K50	Not Used	
	J3001	XDF-536	Not Used	
	J3002	XDF-526	Not Used	

OPSW UNIT

RWZ3463 and RWZ3846 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		RWZ3846	RWZ3463	
	C3005	CCCSL470J50	Not Used	
	J3004	XDF-516	Not Used	

FL UNIT

RWZ3464 and RWZ3847 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		RWZ3847	RWZ3464	
	C3003, C3004	CCCSL470J50	Not Used	
	J3003	XDF-512	Not Used	

TR 1 UNIT

RWZ3849, RWZ3467 and RWZ3848 have the same construction except for the following:

Mark	Symbol & Description	Part No.			Remarks
		RWZ3848	RWZ3849	RWZ3467	
	C1025	CKSQYF223Z50	CKSQYF223Z50	Not Used	
⚠	C1031	VCG-044	Not Used	Not Used	
⚠	C1033	Not Used	Not Used	VCG-044	*
	J	XDF-510	XDF-510	Not Used	
	TERMINAL	Not Used	Not Used	PKC-027	*

Note * : Refer to "2. SCHEMATIC AND PCB DIAGRAMS".

■ PCB PARTS LIST

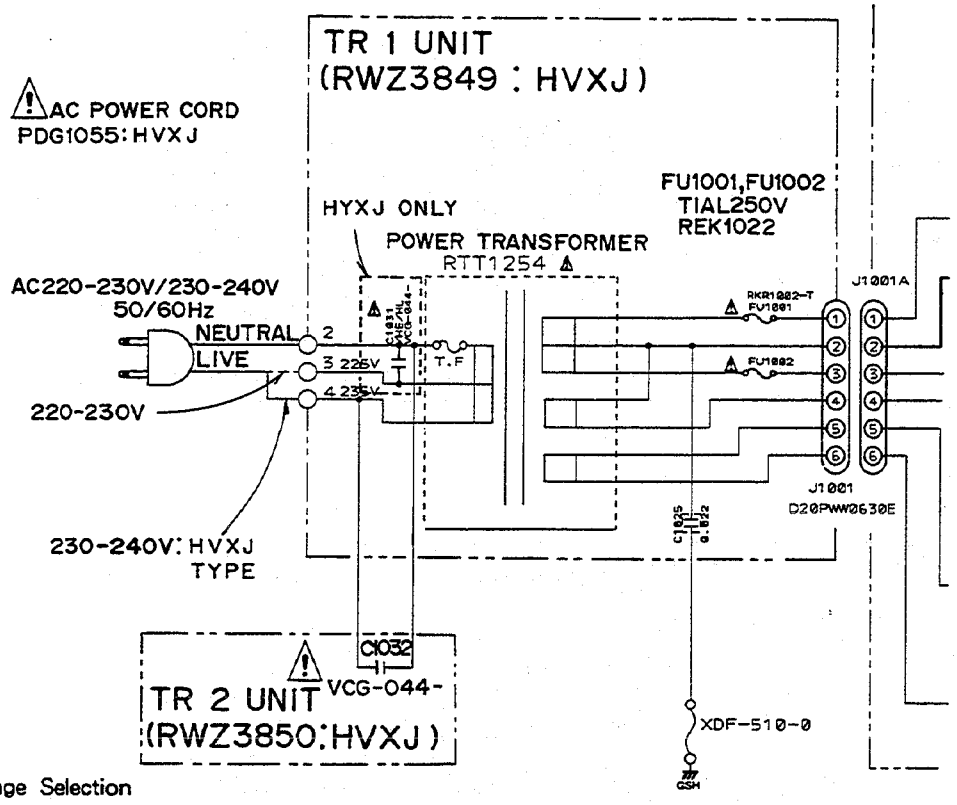
• TR 2 UNIT (RWZ3850)

Mark	No.	Description	Parts No.
CAPACITORS			
⚠	C1032		VCG-044

2. SCHEMATIC AND PCB DIAGRAMS

The differences of adjacencies to power supply are as follows.

• For HVXJ type

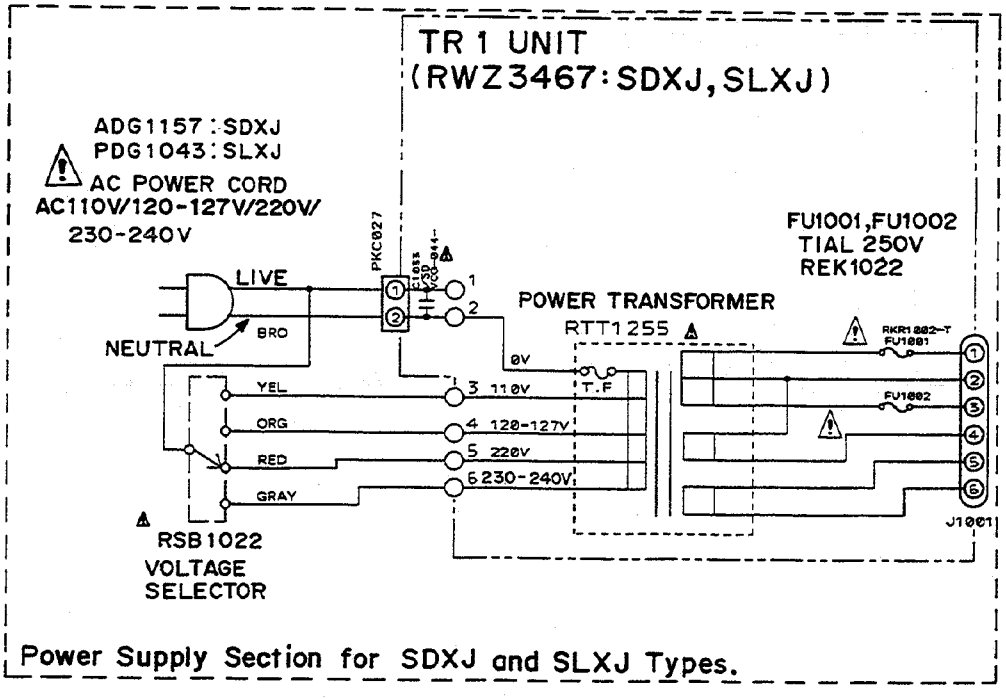


Line Voltage Selection

Line voltage can be chaged by the following modification :
1. Disconnect the AC power cord.
2. Remove the cover.
3. Chenge the connection of TRANSFORMER 1 UNIT primary pins.
4. Stick a line voltage label on the rear panel.

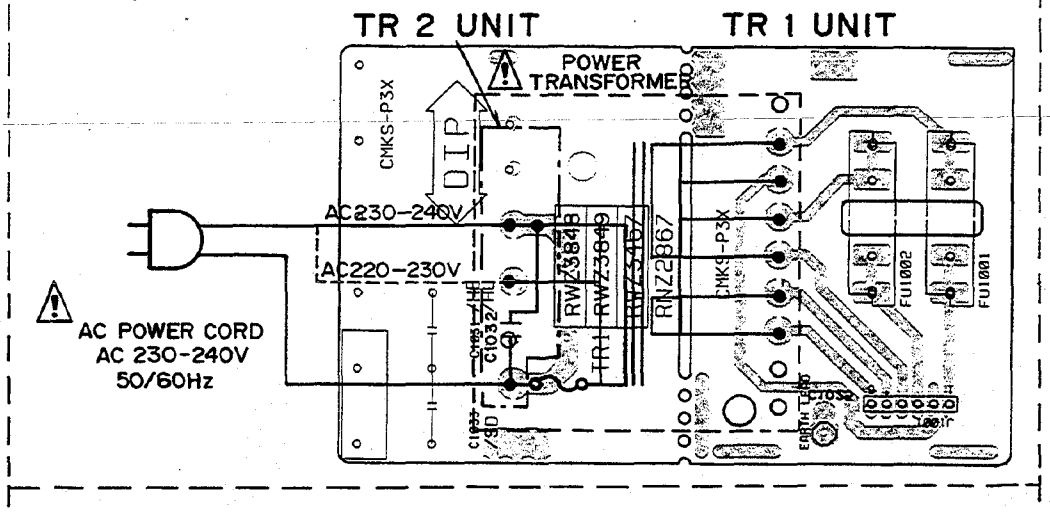
Part No.	Description
AAX – 193	220V label
AAX – 192	240V label

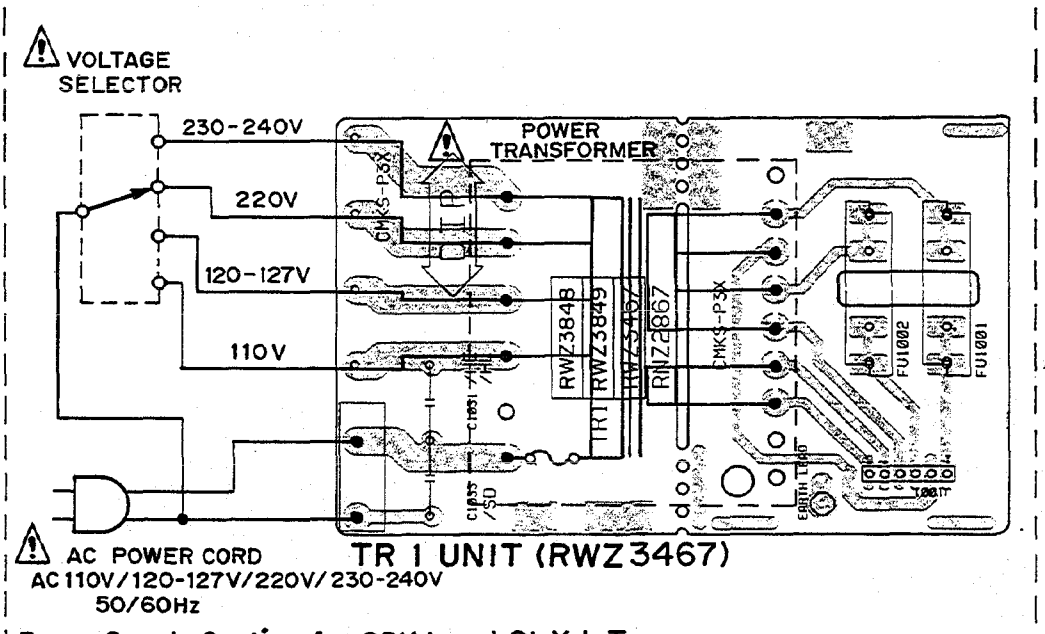
• For SDXJ and SLXJ types



Power Supply Section for SDXJ and SLXJ Types.

Power Supply Section for HVXJ Type.





Power Supply Section for SDXJ and SLXJ Types.